Postdoc position available:

Assessing the adaptive potential of transposon-induced mutations in response to climate change

Applications are invited for a Postdoctoral Researcher to join our team at the Institute of Plant Science (IPS2) within the Paris-Saclay University.
The Plant Quantitative Genomics and Epigenomics laboratory (Q-Lab) investigates the contribution of transposable elements (TEs), together with the epigenetic mechanisms that control their activity, to the generation of heritable phenotypic variation. We use plants as models to address questions at the whole genome level through molecular, genetic, and computational approaches.

The project:
Transposable elements (TEs) are powerful engines of genome evolution, as illustrated by their implication in the rewiring of regulatory networks and the creation of new cellular functions. Short-term consequences of TE mobilization can also be particularly dramatic given that TE insertions are a unique source of large effect mutations. While most TE insertions are likely to be deleterious or neutral, it is widely proposed that because TE activity can be sensitive to the environment, transposition may in fact act as a major adaptive response of the genome to environmental changes. The successful candidate will explore the fitness effects of de novo heritable TE insertions using multigenerational competition experiments and highly complex environments reproduced by a state-of-the-art facility of climate simulators ECOTRONS. The aim of this project is to greatly increase our understanding of the nature of the genetic variation TEs contribute to and our ability to predict the impact of ongoing transposition, notably in the context of climate change.

We are seeking a person with a strong background in population genetics. Experience in molecular genetics and/or ecology will be a plus. This position is fully supported by an ERC Starting Grant, starting by as early as January 2022. The contract is for two years with possibility of extension.

Applicants should send a CV and a cover letter summarizing their experience and motivation to Leandro Quadrana (leandro.quadrana@bio.ens.psl.eu). They should also arrange to have a least two letters of reference sent to this address.

References:

-Baduel P, Leduque B, Ignace A, Gy I, Gil Jr. J, Loudet O, Colot V, Quadrana L. Genetic and environmental modulation of transposition shapes the evolutionary potential of *Arabidopsis thaliana*. ***Genome Biology.*** 2021 22, 138

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-Domínguez M, Dugas E, Benchouaia M, Leduque B, Jiménez-Gómez JM, Colot V, Quadrana L. The impact of transposable elements on tomato diversity. ***Nat Comm***. 2020 Aug 13;11(1):4058.

-Quadrana L, Bortolini Silveira A, Mayhew GF, LeBlanc C, Martienssen RA, Jeddeloh JA, Colot V. The Arabidopsis thaliana mobilome and its impact at the species level. ***Elife***. 2016 Jun 3;5:e15716.

-Quadrana L, Colot V. Plant Transgenerational Epigenetics. ***Annu Rev Genet***. 2016 50, 467-491